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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/470,890 | 12/22/1999 | PATRICK D. SMITH | PD05924AM | 6738 |

7590 05/07/2003

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EXAMINER

BURD, KEVIN MICHAEL

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 2631 | 3 |

DATE MAILED: 05/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

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| | | | |
|------------------------------|-----------------|--------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/470,890 | SMITH ET AL. | |
| | Examiner | Art Unit | |
| | Kevin M Burd | 2631 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 02 August 2000.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-46 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-46 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 02 August 2000 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) The translation of the foreign language provisional application has been received.
 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s). _____.
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)
 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) Other: _____

DETAILED ACTION

Oath/Declaration

1. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

It does not identify the citizenship of each inventor.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 3, 11 and 31 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claims 3, 11 and 31 states the impairment mask is selected from a group consisting of a signal reflection impairment mask. This impairment mask is not disclosed in the specifications.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3, 5-31, 33-35, 37, 38 and 40-46 are rejected under 35 U.S.C. 102(b) as being anticipated by Jacobsmeyer (US 5,541,955).

Regarding claims 1, 12, 14, 19, 22, 24, 26, 27 and 29, Jacobsmeyer discloses an adaptive rate modulator that is particularly useful for transmitting data over fading communication channels (abstract). The received signal is input to a bank of correlators 2252 (column 28, lines 58-62). The soft decision metrics of the decoder are used to provide an estimate of the signal to noise ratio. An optional predictor receives the estimate from the adaptive data rate decoder and predicts the future signal to noise ratio to determine the desired data rate of the modem (abstract).

Regarding claims 3, 11 and 31, the soft decision data is a component of a transmission that is affected by fading. This is caused by noise or interference in the communication channel.

Regarding claims 5 and 33, the adjusting of the data rate overcomes the occurrences of fading in the channel.

Regarding claims 7-10, 16-18, 21, Jacobsmeyer discloses an adaptive rate modulator that is particularly useful for transmitting data over fading communication

channels (abstract). The received signal is input to a bank of correlators 2252 (column 28, lines 58-62). The bank of correlators calculates all correlation values for the fading communication channel transmission. The soft decision metrics of the decoder are used to provide an estimate of the signal to noise ratio. An optional predictor receives the estimate from the adaptive data rate decoder and predicts the future signal to noise ratio to determine the desired data rate of the modem (abstract).

Regarding claims 13, 20, 25, the incoming and outgoing signals are buffered (abstract).

Regarding claims 35 and 38, Jacobsmeyer discloses an adaptive rate modulator that is particularly useful for transmitting data over fading communication channels (abstract). The soft decision metrics of the decoder are used to provide an estimate of the signal to noise ratio. An optional predictor receives the estimate from the adaptive data rate decoder and predicts the future signal to noise ratio to determine the desired data rate of the modem (abstract).

Regarding claims 6, 34, 37 and 40, the fading of the communication channel affects the signal to noise ratio and the prediction of the future signal to noise ratio.

Regarding claims 41, 43 and 45, Jacobsmeyer discloses an adaptive rate modulator that is particularly useful for transmitting data over fading communication channels (abstract). The soft decision metrics of the decoder are used to provide an estimate of the signal to noise ratio. An optional predictor receives the estimate from the adaptive data rate decoder and predicts the future signal to noise ratio to determine the

desired data rate of the modem (abstract). The data rate is changed automatically and dynamically without interrupting the decoding process.

Regarding claims 2, 30, 42 and 46, the change in data rate improves the transmission quality, normalizing the soft decision data recovered in the receiver.

Regarding claims 15, 23, 28 and 44, the estimate of the signal to noise ratio is generated and from this, the estimate of the future signal to noise ratio is generated.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 4, 32, 36 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobsmeyer (US 5,541,955) in view of Hewitt (US 6,526,538).

Regarding claims 4, 32, 36 and 39, Jacobsmeyer discloses the adaptive rate modulator stated above. Jacobsmeyer does not disclose providing a three dimensional presentation of the distribution of the soft decision data over time. Hewitt discloses an encoding scheme with three-dimensional coding schemes or higher (column 6, lines 36-44). To display this data, all three dimensions (x, y and z) must be included (column 4, lines 24-37). Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to utilize three-dimensional encoding of the data streams in the

adaptive rate modulator. This would allow more information to be transmitted and then recovered over the communication channel.

Contact Information

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9314, (for formal communications intended for entry or for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Burd, whose telephone number is (703) 308-7034. The Examiner can normally be reached on Monday-Thursday from 9:00 AM - 6:00 PM.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3800.



Kevin M. Burd
PATENT EXAMINER
4/30/03



CHI PHAM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600 4/21/03